

EFFECTS OF A SCHOOL-BASED ADULT MENTORING INTERVENTION ON
LOW INCOME, URBAN HIGH SCHOOL FRESHMEN JUDGED TO BE AT RISK
FOR DROP-OUT: A REPLICATION AND EXTENSION

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ABSTRACT

Numerous longitudinal studies have followed large cohorts of children from disadvantaged backgrounds and found retrospectively that one difference between children who succeed and those who do not is the presence of a supportive, non-parental adult in their lives. Accordingly, burgeoning research is investigating if positive outcomes can be generated by intentionally placing a non-parental adult in a child's life through a mentoring program. One objective of these mentoring programs is maintaining students' engagement in school. This study was designed as a replication and extension of a one-year efficacy study by Holt et al. (2008), which evaluated a manualized, school-based, adult mentoring intervention for youths deemed at risk for school drop out. The current study lasted 18 months and included a new cohort of 38 similar low-income ninth graders from Holt et al.'s mid-Atlantic, urban high school. The students were randomly assigned to the mentoring group (n=19) or a control group (n=19). The mentors were trained, volunteer teachers, who received ongoing weekly consultation from the program developer. The students completed surveys at 3 different intervals, and 4 semesters of grades and discipline referrals were obtained from school records. As expected from Holt et al., in comparison to the control group, the youth who were assigned mentors reported significantly more positive perceptions of teacher support and received fewer discipline referrals. By the end of this study's extended follow-up period, mentored students also reported significantly greater sense of classmate acceptance and had higher grades in mathematics and language arts than the control group. These findings suggest that providing an adult mentoring program for at least 18 months can increase school

engagement and potentially retain students in school by affecting factors that lead to drop out.

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CHAPTER I

INTRODUCTION

Children who are reared in urban environments by low income families are more likely to have poorer educational outcomes and greater behavior problems than children who are reared in suburban environments by middle and upper income families (Bradley & Corwyn, 2002; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Jimerson, Egeland, & Teo, 1999; McLeod & Shanahan, 1996; McLoyd, 1998; Votruba-Drzal, 2006). Each year, more than one million students fail to graduate after four years of high school, and overwhelmingly, “low-income and minority students fare the worst in the dropout epidemic” (Alliance for Excellent Education, 2009). Students who experience difficult transitions from middle to high school (Isakson & Jarvis, 1999), those who lack basic skills and receive poor grades (Allensworth & Easton, 2007; Alliance for Excellent Education, 2009; Rumberger & Lim, 2008), and those who lack school engagement (Finn & Rock, 1997) are all at potential risk for not graduating from high school.

The urgency to provide support for at-risk youth is evident, as recent statistics indicate that the number of high school dropouts has an economical and social impact on our society. High school dropouts are more likely to be unemployed and/or work for lower wages and are more likely to need governmental assistance than high school graduates (Alliance for Excellent Education, 2009; Bridgeland, Dilulio, & Morison, 2006; United States Department of Education, 2006). Research has shown that factors such as students’ school engagement, the quality of grades students’ receive, students’

school behavior, and students' relationship with their teachers are predictors of school success or failure (Rumberger & Lim, 2008).

Some youth from unfavorable circumstances, however, succeed despite these situations (Werner, 1993). Numerous longitudinal studies have followed large cohorts of children from disadvantaged backgrounds in order to identify the children who succeed beyond expectations and to determine retrospectively what differentiated their childhoods from those of the children who did not succeed (Cowen, Wyman, Work, & Parker, 1990; Finn & Rock, 1997; Luthar, Cicchetti, & Becker, 2000; Werner, 1993; Werner, 1995). One of the most reliable findings has been that children who "beat the odds" tended to have a supportive relationship with a prosocial non-parental adult (Luthar & Zelazo, 2003; Werner & Johnson, 2004).

A possible explanation for this finding from a social developmental perspective is that the non-parental adult, 1) provides encouragement to achieve in school and resist peer pressure to get into trouble, 2) provides guidance in decision-making, assertiveness, problem-solving, and goal-setting, 3) provides experiences with a trust-worthy adult that can lead to trust in other authority figures, and feeling a sense of belonging in conventional institutions, such as schools, and 4) provides specific training in academic and social skills, which can boost sense of self-efficacy in many areas (Hawkins, Catalano, & Miller, 1992).

All of the above longitudinal studies identified retrospectively non-parental adults who were in disadvantaged children's lives through the natural course of events. No intentional intervention had placed them there. A burgeoning literature, however, is investigating whether or not similar positive alternations in life trajectories can be

generated by intentionally placing a non-parental adult in a child's life through a mentoring program (Dubois, Holloway, Valentine, & Cooper, 2002; Foster, 2001; Tierney & Grossman, 2000).

Review of Mentoring Outcome Studies

Jackson (2002) examined the outcome of an intensive mentoring program for adolescents at-risk for delinquent behavior. The mentors were selected from students from a Midwestern university who were interested in becoming mentors and enrolled in a 2-semester practicum. Mentees (n=15) from several junior high schools were randomly selected from a list of 29 at-risk students (selected by school administrators as children with both severe academic and behavioral discipline records and history of school discipline infractions). Of the 15 potential mentees, 13 agreed to participate in the study. The mean age of the participants was 12.5; six were females, 7 males, and 70% were Caucasian (Jackson, 2002). Mentor and mentees were randomly paired but matched based on gender. On average, mentors spent 15-20 hours per week with their mentees. They engaged in activities such as going out to lunch or dinner, visiting the mentee at home or in the classroom, going to the movies, going shopping, working on homework, or taking a walk (Jackson, 2002). School personnel and parents were contacted monthly to assess behavior problems in school and at home and to determine their satisfaction with the program. The mentors and mentees assessed the quality of their relationship. Assessments were completed at 4 intervals (within one week after mentoring began, 4-months after the program began, 8-months after the program began, and within one week prior to the termination of the program). The program lasted for approximately 2 semesters. The results indicated a significant decrease in negative behavior based on

parents' reporting compared to the mentees' previous behavior. Although these changes were not reflected in the teachers' reporting, "only 1 mentee continued to have regular discipline problems at school" (Jackson, 2002). The mentees' mean school infractions decreased significantly from 7.5 at pre-test to 1.5 by the last 3 months of the program. Unfortunately, this study lacked a control group because the experiment was a pretest-posttest model. Thus, the reported significant changes cannot be definitively attributed to the mentoring program.

Portwood, Ayers, Kinnison, Waris and Wise (2005), using a quasi-experimental design, investigated the effectiveness of a school-based mentoring program as a broad-based prevention approach. The program, YouthFriends, is a school-based mentoring program that limits mentor/mentee interaction to the school setting only. Mentees and mentors met for approximately 1 hour per week for 8 to 9 months, although the exact amount of contact hours was not available. For this study, the researchers explored the impact of the mentoring program on several areas including values, attitude and behavior pertaining to substance use and abuse, school connectedness, attitude toward self, adults, the future (goal-setting), and academic performance. Two hundred and eight participants (mentees = 102, comparison = 106) came from five schools from Kansas and Missouri, representing various districts and age groups. The comparison group was selected by teachers and other education staff, and matched to YouthFriend participants. Pre and post surveys were administered during the first semester and last month of the school year. Grades and discipline reports for the study year and the previous year were collected. Only students who completed pretest and posttest surveys were included in the final analysis. A total of 170 students were eligible based on the pre-post-test

requirements. They ranged in grades from 4-12, with 60 students being from grades 7-12. Overall, 52% were females and 48% were males. Of the students in the treatment group who reported their ethnicity, 55 were Caucasian, 10 were African American, 2 were American Indian and 3 reported "other." Of the comparison group who reported ethnicity, 55 were Caucasian, 15 were African American, 12 were Hispanic, 5 were American Indians, 2 as Native Hawaiian or Pacific Islander, 1 as Asian American, and 4 as "other." The results showed that mentored students improved more than the comparison group in certain areas, such as their goal-setting skills and school connectedness (sense of school membership). No significant difference was found, however, in grades, use of alcohol and drugs, and disciplinary records. This research was promising in that a subgroup of the mentored students (those who had the lowest scores at baseline) did demonstrate significant improvement in attitude towards adults, towards school, school connectedness, self-esteem, and their future (Portwood et al., 2005), but it should be replicated with a randomly controlled design.

Keating, Tomishima, Foster and Alessandri (2002) conducted a quasi-experimental study of an existing intensive mentoring program for at-risk youth. All participants in the study originally were on a waitlist; as a youth was matched with a mentor, he/she was placed in the treatment group. Thirty-four youth were matched with a mentor for 6 months, and 34 participants remained on the mentor waiting list and thus made up the comparison group. The participants' ages ranged between 10 and 17 years old, with a mean age of 13.07. Sixty-five percent were males and 32% were Caucasian, 24% African American, 37% Latino, 3% Asian and 3% other. The youth and mentors were closely matched on gender, ethnicity, age, geographic location, and common

interests as reported by mentor and youth. The study was conducted in the western United States where the mentoring program is located. At-risk youth were referred to the program by a professional at school, the County Probation Department, the Child Protective Services, the Youth Services Bureau or the County Mental Health Departments because of behavior problems, emotional problems, poor grades or school attendance, theft, vandalism, or other minor crimes (Keating et al., 2002). The youth's mothers were given two movie passes and the youth was given a \$5 McDonalds gift certificate for participating in the study. Two data points (pre-intervention and 6 months post intervention) of assessments were completed by the youth and the mothers. The youth on the waiting list attended monthly group activities with others who were waitlisted. The mentored youth spent 3 hours minimum each week with their mentor during which time they engaged in a variety of activities including going to sports events, the movies, or a park. They also participated in group activities such as recreational outings, community service projects, cultural events, and educational experiences. The researchers examined the effect of mentoring on various areas such as internalizing and externalizing behaviors, delinquent behavior and perception of available social support. The results indicated that mentees reported fewer delinquent behaviors than the comparison group. One drawback to this study is that the participants were not randomly assigned to groups, making it more difficult to determine if the adult mentors effected the change in the youth, or if youth who would have improved without mentoring somehow were selected for mentoring.

Hughes, Cavell, Meehan, Zhang, and Collie (2005) examined the outcome of two mentoring programs for aggressive children. The two mentoring programs were

PrimeTime, which was designed to build children's competencies, and Lunch Buddy, which was designed to alter children's peer ecologies. One hundred and seventy-four 2nd and 3rd graders participated in the study; 89 were randomly assigned to the PrimeTime group and 85 to the Lunch Buddy. Of the 174 children, only 140 had available data; 86 (39=PrimeTime and 47=Lunch Buddy) of these 140 were used in the study because they remained in the school for two years. Sixty-two percent of the sample was male, 42% was Caucasian, 22% White Hispanic, 35% African American, and one person identified as "other."

The mentors in the PrimeTime program were undergraduate students who were enrolled in a fieldwork class for three semesters. They were to meet with their mentee for at least one hour per week in the community, outside of school hours; and contact them via telephone or mail at least two times per month during the summer. The mentors had weekly supervision; case managers met monthly with teachers to provide support and suggest strategies for working with the children in PrimeTime, and at-home parent consultation was provided for each family. Instead of mentoring, during the second year of the study, the PrimeTime mentees received training in affective and social-cognitive skills at school each week in small groups of 3-6 children for 30-45 minutes. The groups included children identified by teachers as "good citizens" (Hughes et al., 2005). The Lunch Buddy mentors were also undergraduate students. They visited with their mentees twice per week in the school cafeteria for 3 semesters; each semester a different mentor was assigned to the student. These mentors were enrolled in a fieldwork course and received no formal training, but they participated in an orientation. These mentors sat with their mentee and up to 10 of the mentee's classmates for lunch.

While there was no post test difference between the two groups, at follow-up, Lunch Buddy mentees showed a strong trend towards increased peer acceptance, while the PrimeTime mentees decreased in peer acceptance. Qualitative data suggested that mentees were helped to learn socially accepted ways to behave and that just having the college student mentor in the lunchroom “drew positive attention and friendly overtures toward the mentored children” (p.732) from students that were nearby. As Hughes et al. (2005) noted, however, the lack of a no treatment control group prevented them from generalizing these findings, though this research calls attention to the potential impact of mentoring on at-risk youth’s reported peer acceptance.

Early outcome studies were uncontrolled or had quasi-experimental designs. Currently, some mentoring researchers are utilizing randomized controlled designs to better determine the impact of mentoring on at-risk youth. Grossman and Rhodes (2002) conducted a study that examined the importance of dosage on the effectiveness of mentoring. Using 1,138 youth that applied to the Big Brother Big Sister program during 1992-1993, they investigated the impact of mentoring over an 18-month period. The participants were randomly assigned to the treatment group or a control group. The control group consisted of youth who were placed on a waiting list to be matched with a mentor after the study. A baseline telephone interview was initially given to the participants prior to informing them of their treatment status and again at 18-months with all baseline participants. Of the 1,138 youth, 959 (treatment = 487; control = 472) completed both the baseline and 18-month follow-up questionnaire. The participants ranged in age from 10 to 16 years old with a mean age of 12.25 years; 62.4% were males and 57.5% identified as being from a minority group. Among the minority group

members, 71% were African American and 18% were Hispanic American. At the end of the study, 378 of the treatment group youth had been matched with a mentor (109 failed to match for various reasons including no longer being eligible due to age, no longer participating with the agency, change in family demographics, parent or youth not following through with the intake process, or a suitable volunteer was not available).

The dyads met for at least an average of 9 months. Each meeting lasted for an average of 3.6 hours and consisted of “leisure- and goal-oriented discussions and activities with the overall goal of promoting the youth’s positive development (p.204).” The study examined parent relationships, perceived scholastic competence, grades and attendance, school value, self-worth, the quality of the mentor/mentee relationship, and the length of the relationship. They found that the length of the relationship (greater dosage) had significant impact on the outcome of the youth. Specifically, they found that the youth that were mentored for “more than 12 months reported significant increase in their self-worth, perceived social acceptance, perceived scholastic competence, parental relationship quality, school value, and decreased in both drug and alcohol use (p. 208),” when compared to youth who were not mentored. This outcome remained significant even when compared to youth who were mentored but for a shorter period of time (i.e., 3-months). In fact, matches that lasted less than 6 months demonstrated no positive effect when compared to the controlled group. Although there were some significant findings in those who received mentoring between 6-12 months when they were compared to control group, the greatest significance was shown by those who had 12 or more months of mentoring demonstrating “increase in perceived scholastic competence and self-perceived social acceptance, and reductions in truancy and substance use” (p. 209) as

compared to the control group and those who were mentored for less than 12 months (Grossman & Rhodes, 2002). This study, however, only relied on the self-reporting of the youth. Other measures such as school disciplinary reports or report cards might have provided more information about the effect of this mentoring program on the outcome of these students.

Likewise, Herrera, Grossman, Kauh, Feldman and McMaken (2007) conducted a large-scale randomized impact study for the Big Brother Big Sister organization. This was a national random assignment study that examined the impact of their school-based mentoring (SBM) program. Among other questions, the researchers wanted to know how beneficial (socially, behaviorally, attitudinally and academically) the school-based mentoring program was to youth and what were the contributing factors (i.e. having a school-based program, how the mentees were matched, etc.) in creating the most benefits. Students ($n = 1139$, treatment group = 565; control group = 574) from grades four through nine from 10 Boys and Girls Clubs nationwide participated in the program, which involved 71 schools. The sites were selected based on six criteria: strong leadership at the management level for at least 3 years, an operating school-based program for at least four years, serving at least 150 youth per year, serving both boys and girls, use of at least two different types of volunteers, and having a well-established relationship with the schools involved in SBM and a signed memorandum from the school district concerning study involvement. Youth were recruited into the program primarily through school staff referrals.

Using a lottery system, the researchers randomly assigned the participants to be matched with a volunteer mentor ($n=565$) or placed on the agency's waiting list (the

control group, n=574). Fifty-four percent of the sample was female, 37% were Caucasian, 23% were Hispanic Americans, 18% were African Americans, 6% were Native Americans, 1% were Asian/Pacific Islander, 13% were multiracial and 3% identified as other. The average age of the youth was 11 years old, with 52% being between 11 and 13 years old. Based on teachers' reports, more than half of the sample "needed improvement or were performing below grade level in math, reading, writing or overall academic performance." The program was for 15 months, during which time data were collected at various intervals. Mentees and mentors met for approximately 45 to 60 minutes in the school per week, during which time they typically engaged in activities such as, homework help and tutoring, arts and crafts, drawing, playing games, talking about various issues and topics, and having casual conversation. Sixty-four percent of the mentees spent some of their time interacting with other mentees in after-school programs and occasionally during lunch (Herrera et al., 2007). All the youth, their teachers and mentors were surveyed at three time points: baseline (Fall semester of the school year), first assessment point (end of the first school year) and a second assessment point (Fall of the second school year just before their winter break). Mentors completed an additional survey that provided information about their contact with the mentee over the summer break. Impacts of the study were measured by comparing the progress made by youth in the treatment group to that of youth in the control group.

The researchers found that after the first school year of mentoring (approximately five months), in-school benefits were present. Teachers reported that the mentees improved in their overall academic performance, and specifically in science and written and oral language, completion of assignments, quality of class work and serious school

infractions compared to the control group. The youth reported improvement in their scholastic (academic) self-efficacy and unexcused school absences. The findings also indicated that more than one school-year of mentoring is needed for longer lasting improvements. When they compared those who were mentored for two years with those whose mentoring ended after the first school year, they found that those youth who received mentoring in Year Two “appeared to fare slightly better in school-related outcomes” (Herrera et al., 2007).

Holt, Bry, and Johnson, (2008) recently conducted a small, randomized trial to study the impact of an adult mentoring program (Achievement Mentoring) in a North Atlantic urban high school serving predominantly low income students who are members of United States minority groups. Holt et al. (2008) examined the effects of being assigned a mentor for 5 months on freshman students who were identified by school personnel as being at risk for school dropout. All of the at risk freshmen who participated in the study also received the Peer Group Connection Program, a prevention program designed for all freshmen, which utilizes peer influence to help teens “cope with universal, everyday problems and pressures of becoming adults” (Powell, 1993).

Using a sample of 44 ninth graders identified as “at-risk,” the researchers randomly assigned 50% of the sample to the 5-month treatment group (n=22) and 50% to the control group (n=22). Two students from each group were excluded due to various reasons (not receiving treatment, no longer in school district, etc). Fifty-eight percent of the sample was male, 47% was Latino, 38% identified as African American, 5% was White, and 10% identified as Other. On a weekly basis, mentors were expected to complete several activities including, talking with one of the mentee’s teacher to learn

about positive things the mentee did that week, meeting with their mentee for 15-20 minutes during which at least one positive accomplishment for that week was acknowledged, learning about the mentee's long-term goals, and practicing "an important and relevant behavior with the mentee (p. 303)" (Holt et al., 2008). Mentors were also encouraged to contact the mentee's parents monthly and talk about the mentee's positive behaviors. The mentoring program lasted 5 months with monthly booster sessions being provided during the next school year. Approximately 50% of the mentored students (n=11) received at least one booster session in the first semester of the following school year. The program Coordinator met with the mentors weekly to discuss the meeting with their mentee, including any challenges they encountered. Mentors received a stipend and professional development hours for their participation, and all participating students received school store coupons each time they completed their surveys (baseline and at the end of the first school year).

The researchers found evidence that students who were assigned a mentor maintained a positive perception of teacher support, while there was a significant decrease in the control group's perception of teacher support. The mentored students' self-efficacy in decision making was maintained while the control group's perceived decision-making abilities declined. The mentees did not receive a first-time discipline referral during the 5-month intervention period, while 3 members of the control group received discipline referrals for the first time during the 5-month intervention period. Although Holt examined the impact of mentoring on school grades both at the end of the 5-month more intensive program and also after another semester of booster sessions, no significant program impact was observed. Since grades are often used to measure

academic success, which increases the likelihood of students staying in school instead of dropping out of school, it is important to increase the follow-up time in the next study of Achievement Mentoring to learn if Grossman and Rhodes (2002) and Herrera et al.'s (2007) reported effects on academic performance can be seen on school report cards.

Past researchers have found various important variables in the lives of disadvantaged youths to be impacted by providing a mentoring program. Holt et al. (2008) found greater decision making abilities and perception of teacher support among mentored students. Portwood et al. (2005) found better goal-setting abilities and greater school connectedness for mentored students. The findings of Hughes et al. (2005) suggest that mentored students have a more positive perception of peer acceptance than non-mentored students. Grossman and Rhodes (2002), Holt et al. (2008), Jackson (2002), and Keating et al. (2002) found a decrease in mentored students' negative behaviors. Herrera et al. (2007) found that mentoring had a positive impact on teacher-rated academic achievement. Grossman and Rhodes (2002) also indicated that duration of mentoring makes a difference in the outcome. Grossman and Rhodes (2002) suggested that mentoring has its greatest impact when mentoring lasted for an extended period of time (i.e., more than 12 months). Though these studies provided important information and new directions, many of the studies were quasi-experimental. To better understand the impact of mentoring, randomization of the participants and additional ways of measuring mentees' outcome are needed. This study will improve on previous research by 1) examining the same variables, 2) improving the assessment of outcomes by using subjective and objective measures, 3) increasing the duration of mentoring as

suggested by Grossman and Rhodes (2002) by extending the time beyond Holt et al. (2008), and 4) randomly assigning the participants to the treatment or control group.

The Current Study

The current study will attempt to replicate and extend Holt et al.'s findings by studying, in another randomized controlled trial, the impact of the same program, Achievement Mentoring Program, over a longer period of time (2 academic years) and on additional variables, using another cohort of freshmen who have been judged to be at risk for dropping out of the same high school.

The following hypotheses will be tested:

- 1) Students who received Achievement Mentoring will show greater decision making self-efficacy, compared to the randomly assigned control group.
- 2) Students who received Achievement Mentoring will show greater goal setting self-efficacy, compared to the randomly assigned control group.
- 3) Students who received Achievement Mentoring will show greater perception of teacher support, compared to the randomly assigned control group.
- 4) Students who received a school-based adult mentoring program will show greater classmate acceptance.
- 5) Students who received Achievement Mentoring will report fewer problem school behaviors, compared to the randomly assigned control group.
- 6) Students who received Achievement Mentoring will show greater academic achievement, compared to the randomly assigned control group.

CHAPTER II

METHOD

Participants

Thirty-nine ninth grade students from a low-income, Mid-Atlantic urban public high school were selected to participate in this study based on their teachers identifying them as being at-risk for not successfully completing their secondary education. As in Holt's study, all of the freshmen also were receiving the Peer Group Connection Program (Powell, 1993). Participants' at-risk status was determined during the second half of the Fall semester of their Freshman year. Although those students with severe attendance problems were considered for the program, in order to participate, it was required that the students' attendance not be so problematic that they would be absent too much to participate in the program. Twenty-two females were identified; and the majority of the students were of African American descent (Table 1).

Research Design

Using a stratified method, each selected student was paired with a similar selected student based on sex, ethnicity, grades, attendance and discipline records, in that order of priority. Using a coin toss, one member of each pair of students was then randomly assigned to the mentored group. The other member of the pair was not mentored. A set of three male students were matched based on the above criteria; and based on a series of coin tosses, two students were assigned to the mentored group and one to the control group.

Table 1

Demographic Characteristics of Participants and Mentors

Participants	Students (n=39)		Mentors (n=12)	
	n	%	n	%
Ethnicity				
African American	31	79	6	50
Hispanic American	7	18	0	0
European American	1	3	6	50
Gender				
Male	17	44	6	50
Female	22	56	6	50

Those students who were assigned to the mentoring group participated in the Achievement Mentoring Program intervention during the second semester of their freshman year and were provided booster sessions during their second year of high school.

Procedure

Survey. Pretest, Posttest 1, and Posttest 3 data were collected through a survey that was administered in school during the first semester (Fall, 2005) to all incoming freshmen, at the end of the first school year (May 2006) to all available freshmen students, and the end of the second (May 2007) school year to the 2005 freshmen cohort, as part of a larger ongoing study (Johnson, Holt, Bry, & Powell, 2008). Surveys were

administered to large groups (about 100) freshmen together during the school day (except for lunch time). Students were placed at separate tables in the cafeteria so their answers could be private. Absent freshmen were taken out of class individually to take the survey when they were present in school during the next few weeks. The survey was approved by the University's IRB and the administration of the study school. A Spanish version of the survey was available to all the students as was a Spanish-speaking adult to assist the students with questions. Students received a \$5 school store coupon each time they completed a survey. Each student was assigned an identification number and only that number (and no names) appeared on the survey to ensure the preservation of confidentiality.

Achievement Mentoring Program. The Achievement Mentoring Program (AMP; Bry, 2001) is a manualized modification of the Early Secondary Intervention Program (Stanley, Goldstein, & Bry, 1976). The latter is now known as the Behavioral Monitoring and Reinforcement Program (SAMHSA, 2008). The program procedures have all the essential qualities Foster (2001) identified as critical for an effective mentoring program. The program is based on social learning theory, in that mentoring intervention provides the students with repeated exposure to environments where they are shown that they can control their destiny. Thus the program is designed to elicit change in the youth's cognition and behavior (Bry, 1982). The program also emphasizes the importance of intervening in the two main micro-systems of the students, their school and home environments (Bien & Bry, 1980).

AMP mentors were teachers and other school staff who volunteered to be mentors after a brief presentation of the program during a faculty meeting. These volunteers were

required to participate in a 3-hour training session conducted by Dr. Bry, prior to being chosen as AMP Mentors. A total of 12 mentors (11 teachers and 1 guidance counselor) were chosen from all volunteers based on their attendance and completion of the 3-hour training session. Fifty percent of the mentors were of African American descent and 50% were males (Table 1). The mentors were paid \$90 for completing the training and \$500 for each school year of mentoring. From the students who had been randomly assigned to the mentoring program, the mentors had the option of choosing which students they wanted as mentees. Most mentors had two mentees.

The mentors were responsible for notifying their mentees' teachers, the administrators, and guidance counselors of their assignment to mentor the student. Mentors obtain the mentee's class schedule, and a copy of most recent report card. From the initial encounter, mentors begin to learn about their mentees, including getting a phone number from the mentee and learning the best time to contact him/her. Learning about the mentee's long-term plans, their goals and educational/vocational aspirations was also encouraged.

The following specific procedures were expected of all mentors on a weekly basis:

1. Review number of days absent, tardiness, and any discipline referrals received. Interview one of the student's teachers concerning the student's progress in class, including any upcoming assignments. Ask the teacher for any positive things the student did in the past week.
2. Meet with the mentee for at least 15-20 minutes, during which time the mentee is given the opportunity to present his/her view of what happened during the past

week. The mentee is informed of all the positive things that he/she did, based on information collected from school records and teacher interview. The mentee is praised for the accomplishments. Behaviors that need improvement are identified and problem-solving is used to explore how to change the behavior. New behaviors, such as organizing a notebook, do homework, or talking to a teacher are practiced during the meeting.

3. Inform another person, such as another teacher, about the mentee's accomplishment(s) and arrange to have this person praise the mentee.

On a monthly basis, the mentors were to contact the mentee's parents to inform them also about the progress in the youths' behaviors. Parents are informed of the positive things that the student does which provides an additional opportunity for the mentee to be praised by the parents for positive behavior. It also was strongly recommended that mentors meet with their mentees at least monthly for booster sessions during the next academic year.

Mentor training. All mentors attended a 3-hour training session after school. The training session was conducted by Dr. Brenna Bry, who developed the Achievement Mentoring Program and authored the manual (Bry, 2001). The mentors were given an honorarium for their participation in the training and for their mentoring.

On-going consultation and support. During the second semester of the program's first year, Dr. Bry was available to meet with each mentor in the school for approximately 20 minutes for 13 weeks. She reviewed the program procedures, discussed the progress that was made with each mentee and problem-solved any issue

pertaining to the mentoring relationship or mentee's progress. She met a mean average of 9.25 times with each mentor, with the number of meetings ranging from 7-12 times.

During the second semester of the Booster Session year, Dr. Bry met once a month for 75 minutes with the mentors in a group format, designed as a luncheon, during which time the progress and goals of each mentee were discussed with input from other mentors. Mentor activity logs were also collected. The program developer assisted the mentors with problem-solving how to best help the students, using the activities specified in the program manual. All of the mentors attended at least 1 of 5 scheduled luncheons over the 5-month period. The frequency of attendance ranged from 1-5, with a 3.29 mean number of times attended, and a median attendance of 3.5.

Mentor manual adherence. Adherence was the extent to which the mentors complied with the manualized program procedures of the mentoring program. Mentors maintained a weekly log during the semester which detailed when they met with each mentee, the length of the interaction, the specific goal(s) discussed and any plans that were made for completing the goal(s). Likewise, during the second semester of the program's first year, after each weekly meeting with the mentors, the program developer completed a fidelity report. The program developer indicated which of the 10 program procedures (i.e. mentor met for consultation, had mentee's records, talked to a teacher or administrator regarding mentee, talk to or left message for mentee, identified a problem or goal, asked about mentee's circumstances or perceptions around problem/goal, etc.) were completed by the mentor. The mentors' level of compliance with each item of the manualized program varied, ranging from 45% to 100% with an overall mean average of 72.5% adherence to the program procedures. Specifically, the mentors demonstrated less

compliance on items such as “asked about mentee’s circumstances or perceptions around problem or goal (45%),” “checked how previous plans worked (48%),” and “made plans with mentee to implement a solution (57%).” The mentors had greater compliance for items such as “identified a problem or goal (81%),” “mentor verbalized next step (80%),” and “talk to or left message for mentee (77%).” The mentors had 100% compliance for “met with consultant” and “had mentee’s records.” Interrater reliability was 100%.

Dosage. During the first year of the study, mentors met with their mentee an average of 5.14 times during the second semester and spent from five minutes to 45 minutes with their mentees each time they met, with 20.78 mean average minutes spent with a mentee. The number of times they met ranged from 1-9 with a median of 7 times. During the Booster year, mentors met with their mentees less often but were asked to continue adherence to the 10 program procedures. The mentors met with their mentees an average of 8.91 times and spent as little as 2 minutes to as much as 120 minutes each time they met, with a mean average of 21.74 minutes spent with a mentee. The number of times the mentor and mentee met ranged from 2-20 times with a median of 8 times. An intent-to-treat approach was used to analyze the data. Thus, participants who met with their mentor at least once were compared with the control group.

Survey Variables Measures

Decision-making self-efficacy (See Appendix A). The students’ evaluation of their decision-making skills was assessed using McNeal and Hansen (1999) decision-making scale on the survey, which measures the individual’s view of their ability to think about the options available to them and the potential consequences prior to making a decision. The scale is introduced by the question “How often would you say that you...”

followed by three items “stop to think about your choices before you make a decision,” “stop to think about how your decisions may affect others’ feelings,” and “make good decisions.” The students respond from a 5-point scale ranging from 1 (never) to 5 (always) on a 5-point Likert scale. Higher scores indicate more decision-making skills. The producers of the scale reported an internal consistency of $\alpha = .70$ and our data yielded $\alpha = .81$.

Goal-setting self-efficacy (See Appendix A). The students’ evaluation of their ability to set and persistently work towards goals, as well as the frequency with which goals are set was assessed using McNeal and Hansen (1999) five-item subscale. The items are introduced by the phrase, “How often would you say that you...” followed by statements such as “work on goals that you have set for yourself,” “set goals to achieve,” and “give something your best” that can be responded to by selecting 1 (never) to 5 (always). Higher scores indicate more goal-setting skills. The producers of the scale reported an internal consistency of $\alpha = .77$ and our data yielded internal consistency of $\alpha = .80$.

Perception of teacher support (See Appendix A). Items that Holt et al., (2008) used from the Psychological Sense of School Membership Scale (PSSM; Goodenow, 1993) to create a teacher support subscale was used to assess the degree to which the students perceive teachers to be interested in them and available. The four items are “Most teachers at school are interested in me,” “The teachers here respect me,” “There’s at least one teacher or other adult in this school I can talk to if I have a problem,” and “Teachers here are not interested in people like me.” This scale assesses how much the student feels respected, valued and supported by their teachers. The students respond

from a 4-point scale with 1 (really false) to 4 (really true). A higher score indicates a higher perception of teacher support. The data produced an adequate internal consistency of $\alpha = .62$ for this scale.

Perception of classmates acceptance (See Appendix A). The students' perception of their relationship with their classmates was assessed using 6-items from Bowen and Richman's (1997) social support subscale of the School Success Profile on the survey. Students were asked to respond on a 4-point Likert scale ranging from 1 (disagree) to 4 (agree) to statements such as "students in my classes are willing to listen to me," "my classmates want me to do well," and "I can ask my classmates for help with my homework." A high score suggest that students' perceive their classmates as being accepting of them. The data produced internal consistency of the scale to be $\alpha = .74$.

Negative school behavior (See Appendix A). Students' negative school behavior was assessed via the survey based on their response to items such as the number of times they cut a class, came to school late, had in or out of school suspension and/or were involved in a physical altercation with another student (Bowen & Richman, 1997). The 8-item subscale was introduced by the question "During the past school year, how often did any of the following happen to you?" The students respond on a 3-point Likert scale, ranging from 1 (never) to 3 (more than twice), to statements such as "I cut at least one class," "I was sent out of class because I misbehaved," and "I was given an out-of-school suspension." A high score indicates higher amount of negative school behavior. The data generated an internal consistency of $\alpha = .90$

School Records Variable Measures

Academic performance. A copy of the report cards of each study participant was collected each year. Two marking periods were combined to create four different semester grades for each student. Semester grades were calculated and analyzed based on 3 major academic subjects: Language Arts, Mathematics, and Science or Social Studies. First semester grades were labeled Pretest, second semester Post 1, third semester Post 2, and fourth semester Post 3.

Disciplinary referrals. Disciplinary referral reports were obtained for all students over the two academic years. Two marking periods were added together to create semester, for a total of 4 semesters (Pretest, Post 1, Post 2, and Post 3).

Demographics Variable Measures

Information about the student's demographics was obtained from a multiple-choice section on the survey that included information about age, gender, and race/ethnicity. The choices for race/ethnicity were African American, Latino, White (non-Latino) and Other.

Data Analytic Strategy

Descriptive analyses were conducted for each of the study variables. Each variable was examined for skewness and was found to be normally distributed. Reliability of the survey scales was examined using Cronbach's Alpha. T-tests were conducted to determine if the control and intervention groups differed at pretest on any of the study variables. In order to determine if mentoring made a difference, t-tests were conducted to compare the mentored and control groups for each survey variable at post 1 and post 3. Because the discipline referrals data did not meet t-test assumptions, Mann-

Whitney U tests were conducted to examine group differences during each semester. Separate 2 (Group) x 4 (Semester) repeated measures mixed analyses of variance (ANOVA) were conducted for the academic grades. A Huynh-Feldt correction was used when the variance assumption was not met. Interactions were examined for program effects.

Power analysis. According to Cohen (1992), a sample size of $N=26$ is needed in each group when there are two groups in order to detect a large effect size with .80 power and significance at $\alpha = .05$. Large effect sizes have been detected in previous studies of this intervention (Bry, 1982, as cited in Gottfredson & Wilson, 2003, Holt et al., 2008;). Nevertheless, power was less than optimal. Thus, the effect sizes of the group differences, η (eta), were calculated as a second possible indicator of intervention effects. An eta of .10 is considered a small effect; an eta of .24 is considered a medium effect, an eta of .37 is considered a large effect, and an eta $\geq .45$ is considered a very large effect (Leech, Barrett, & Morgan, 2005).

CHAPTER III

RESULTS

Attrition Analysis

Survey data were available for 37 participants at pretest, 33 participants at post 1, and 25 participants at post 3. Attrition was the result of students being unavailable due to various reasons including students dropping out of school (n=10, 7 controls, 3 mentored), students being sent to an alternative school (n=2, 1 control, 1 mentee), and one student being placed out of district (n=1 mentee) by the time the final data were collected. At post 1, one student who was assigned to the mentored group had not received mentoring, thus his data were removed from the sample. Information on grades was available for 36 participants at post 1 and for 26 participants at post 2 and post 3. Discipline information was available for 38 participants at pretest, for 36 participants at post 1, and 23 participants at post 2 and post 3. Figure 1 shows a flow chart of participants' selection and continuation in the study. The students in Alternative school had report cards but no discipline referral records.

Two-tailed t-tests showed that those who remained active in the study for all four data points were not different at baseline on any of the study variables from those who attrited (Table 2). By post 3, 26% of the mentored and 42% of the control group attrited. Completers and attriters at both post 1 and post 3 were compared on all baseline variables. There was no difference between those who remained in the study and those who attrited at post 1 or post 3 on any of the variables at baseline.

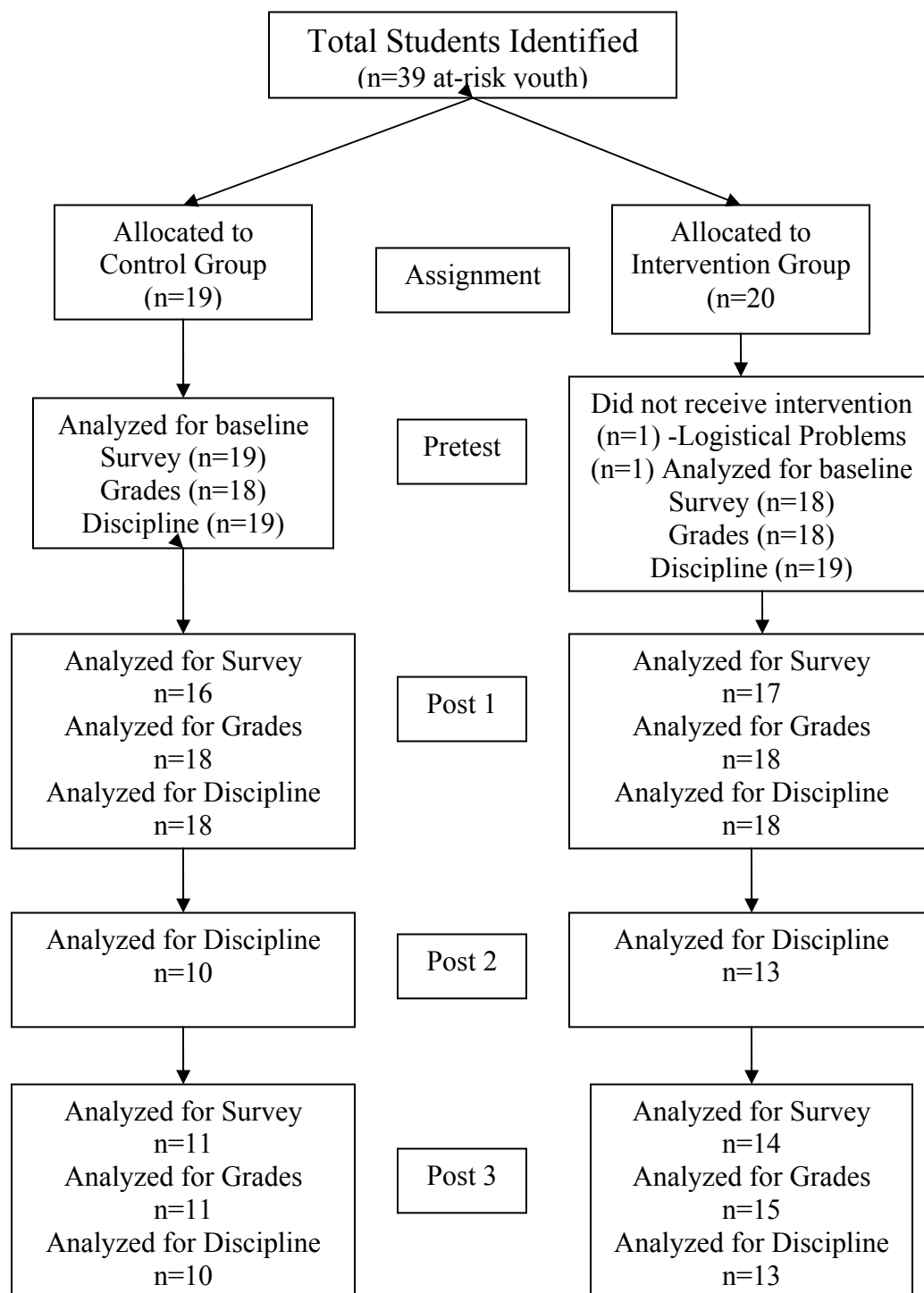


Figure 1. CONSORT Flowchart of Participants Throughout the Study.
Table 2

Comparison of Active and Attritted Participants on All Variables

Variables	Post 1 ^a	Post 3 ^b
Survey	%	%
% no survey completed [‡]	13	34
Decision-making self-efficacy	t(35) = -.41, p=.69	t(35) = -.85, p=.40
Goal-setting self-efficacy	t(35) = -.26, p=.80	t(35) = .41, p=.68
Perception of teacher support	t(35) = -.30, p=.76	t(35) = -.10, p=.92
Perception of classmate acceptance	t(35) = -.58, p=.57	t(17.1) = .07, p=.95
Negative school behavior	t(34) = .65, p=.52	t(34) = 1.45, p=.16
School Records		
% no report card [‡]	5	32
Mathematics		t(34) = -.63, p=.53
Language arts		t(34) = -1.37, p=.18
Social science		t(34) = -1.19, p=.24
% no discipline referral [‡]	5	40
Discipline referrals	t(36) = -.89, p=.38	t(36) = 1.56, p=.13

Note. The participants were considered attritted if there were no available school records.

^aParticipants for survey (n=33), grades (n= 36), and discipline referrals (n=36).

^bParticipants at post 3 for survey (n= 25), grades (n = 26), and discipline referrals (n = 23). [‡]Percentage from baseline with no completed survey, no available grades, or no available discipline referral records.

Table 3

Means and Standard Deviations at Pretest for All Variables for Each Group

Variables	Mentees (n=18) ^a M (SD)	Controls (n=19) ^a M (SD)
Survey		
Decision-making self-efficacy	3.02 (1.24)	3.11 (1.07)
Goal-setting self-efficacy	3.44 (1.02)	3.85 (1.01)
Perception of teacher support	3.11 (.64)	3.13 (.73)
Perception of classmate acceptance	2.80 (.81)	2.62 (.55)
Negative school behavior	1.25 (.35)	1.57 (.64)
Discipline referrals	.79 (1.44) ^b	.63(.83) ^b
Grades		
Mathematics	66.64 (12.05)	61.56 (14.11)
Language arts	70.11 (10.69)	68.08 (10.42)
Social science	68.75 (14.53)	63.75 (21.57)

Note. ^a One mentee did not take the Pretest survey (Survey n=18); report card was unavailable for another mentee (Grades n=18). Report card was unavailable for one member of the control group (Grades n=18). ^b Discipline referrals were available for all participants (mentees n= 19; controls n=19).

Group Comparisons at Pretest

At pretest, all the study variables were analyzed for the treatment group and the control group using t-tests. There was no significant group difference between those

assigned to the mentoring group and those assigned to the control group on any of the cognitive or behavioral study variables (See Table 3).

Group Comparisons at Post 1 for Survey Variables and Discipline Referrals

Decision-making self-efficacy. The means of the mentored group ($M = 3.71$, $SD = .97$) and control group ($M = 3.48$, $SD = 1.24$) were analyzed using t-test. There was no significant difference between the groups with respect to their self-reporting of their decision making skills at post 1 (end of 2nd semester 1st year) $t(29) = -.58$, $p = .57$. Both groups demonstrated a slight increase from baseline (See Table 4).

Goal setting self-efficacy. Concerning the students' self-report of their goal-setting skill, at post 1 no significant difference was found between the mentored group ($M = 4.21$, $SD = .77$) and the control group ($M=3.75$, $SD = .84$), $t(29) = -1.60$, $p = .12$ (See Table 4).

Perception of teacher support. When the groups were compared on their perception of teacher support, although there were was no statistically significant difference at this first follow-up (post1), there was a trend which favored the students who were mentored ($M=3.12$, $SD = .52$), as compared to the control group ($M= 2.75$, $SD = .59$); $t(28) = -1.80$, $p=.08$ (See Table 4).

Perception of classmate acceptance. When the groups were compared on their perception of classmates acceptance, at post 1 no significant difference was found between the mentored group ($M=2.91$, $SD= .49$) and the control group ($M=2.60$, $SD.58$), $t(29)=-1.59$, $p=.12$ (See Table 4).

Table 4

Means and Standard Deviations of Survey Variables for Each Group at Pretest, Posttest 1, and Posttest 3

Variables	Pretest		Posttest 1		Posttest 3	
	Mentees (n=18) M (SD)	Controls (n=19) ^a M (SD)	Mentees (n=17) ^b M (SD)	Controls (n=16) M (SD)	Mentees (n= 14) M (SD)	Controls (n=11) ^c M (SD)
Decision-making self-efficacy	3.02 (1.24)	3.11 (1.07)	3.71 (.97)	3.48 (1.24)	3.81 (1.03)	3.39 (.84)
Goal-setting self-efficacy	3.44 (1.02)	3.85 (1.01)	4.21 (.77)	3.75 (.84)	4.29 (.96)	3.87 (1.05)
Perception of teacher support	3.11 (.64)	3.13 (.73)	3.12 (.52) [†]	2.75 (.59)	3.48 (.37)*	2.82 (.80)
Perception of classmates acceptance	2.80 (.81)	2.62 (.55)	2.91 (.49)	2.60 (.58)	3.27 (.48)*	2.76 (.59)
Negative school behavior	1.25 (.35)	1.57 (.64)	1.46 (.58)	1.80 (.53)	1.34 (.26)*	1.79 (.51)

^a Control group (n=18) for negative school behavior. ^b Mentee group (n=14) for perception of teacher support, (n=15) for decision-making self-efficacy, goal-setting self-efficacy, perception of peer acceptance, and negative school behavior. ^c Control group (n=10) for negative school behavior. [†]p< .10, *p< .05, two-tailed.

Negative school behavior. The students reported their negative behavior on the survey and the school's recorded disciplinary reports were obtained. When at posttest 1 the mentored group's self-report of negative school behavior ($M = 1.46$, $SD = .58$) was compared to the control group ($M = 1.8$, $SD = .53$), no significant difference was detected, $t(29) = 1.70$, $p = .10$ (See Table 4).

Discipline referrals. When the recorded disciplinary referrals were compared at post 1 using Mann-Whitney, there was no significant difference between the mentored group and the control group, $Z = -.92$, $p = .36$ (See Table 5).

Group Comparison at Post 2 for Discipline Referrals

Discipline referrals. The students' discipline referrals were compared at the end of the 1st semester of the Booster year. The Mann-Whitney U test was used to analyze the discipline referrals. When the mentored students' disciplinary referrals were compared to the control students' number of disciplinary referrals at post 2, there was no significant difference between the groups, $Z = -.80$, $p = .42$ (See Table 5).

Table 5

Number of Discipline Referrals for Each Group at Pretest, Post 1, Post 2, and Post 3

Pretest		Post 1		Post 2		Post 3	
Mentees (n=19)	Controls (n=19)	Mentees (n=18)	Controls (n=18)	Mentees (n=13)	Controls (n=10)	Mentees (n=13)	Controls (n=10)
6	5	2	11	3	7	3*	15

* $p < .05$, Mann-Whitney U test

Group Comparisons at Post 3 for Survey Variables and Discipline Referrals

Decision-making self-efficacy. When the control group ($M = 3.39$, $SD = .84$) was compared to the mentored group ($M = 3.81$, $SD = 1.03$) for their reported at post 3 using t-test, the results indicated no significant difference between the groups $t(23) = -1.09$, $p = .29$.

Goal-setting self-efficacy. A comparison of the control group ($M = 3.87$, $SD = 1.05$) with the mentored group ($M = 4.29$, $SD = .96$) for the self-report of their goal-setting self-efficacy at post 3 using t-test, resulted in no significant difference between the groups $t(23) = -1.02$, $p = .32$.

Perception of teacher support. With respect to the students' perception of teacher support, when the mentored group ($M = 3.48$, $SD = .37$) was compared to the control group ($M = 2.82$, $SD = .80$) using the t-test at post 3, there was a statistically significant difference between the mentored and the control group, $t(13.41) = -2.55$, $p = .02$ (See Figure 2).

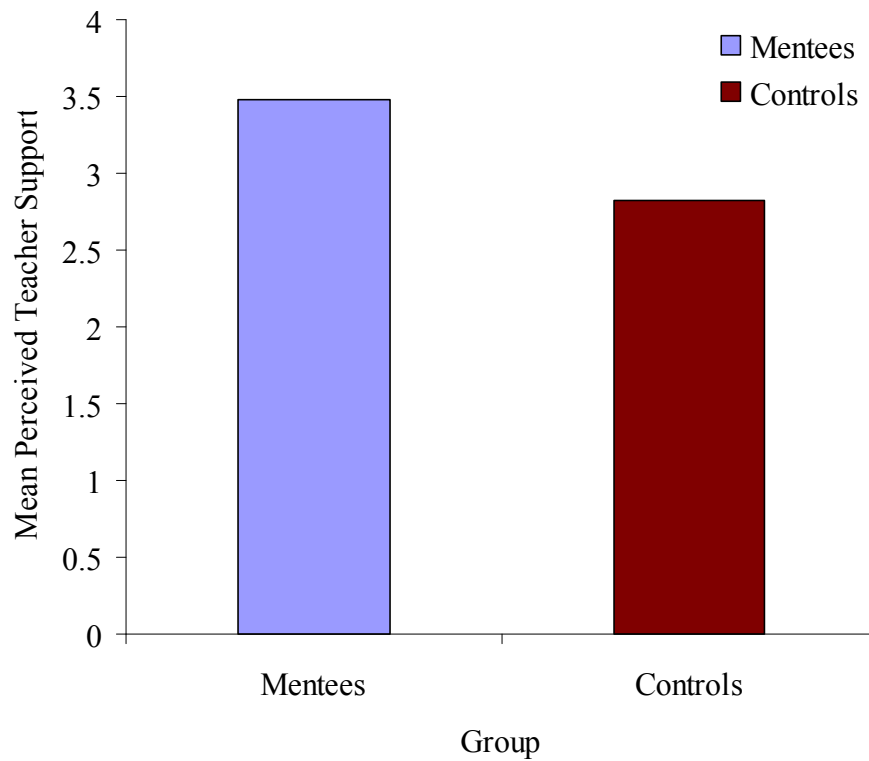


Figure 2. Comparison of mentored group and control group for perception of teacher support at Post 3.

Perception of classmate acceptance. When the mentored group ($M = 3.27$, $SD = .48$) was compared to the control group ($M = 2.76$, $SD = .59$) at post 3 using the t-test, the result indicated a statistically significant difference, $t(23) = -2.39$, $p = .03$ (See Figure 3).

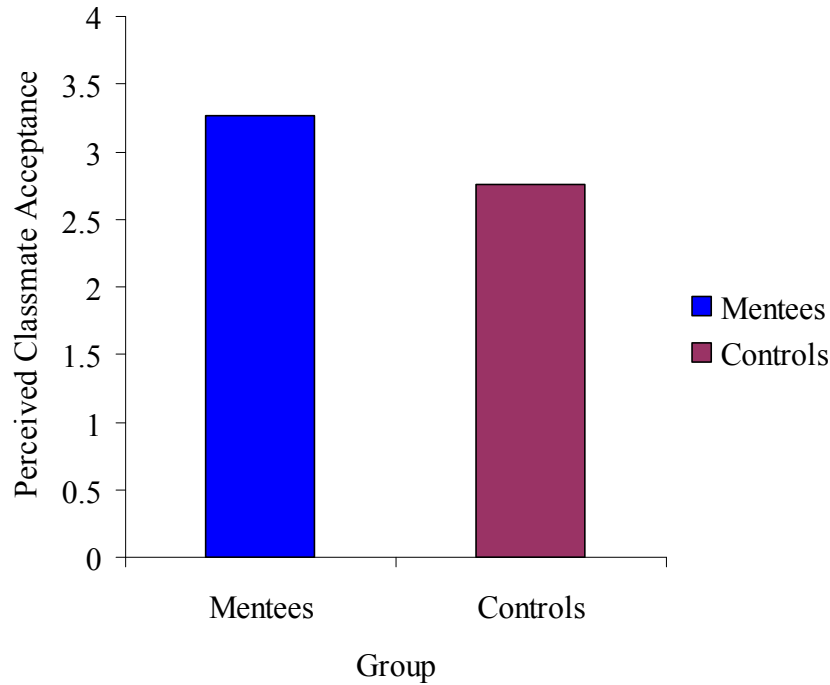


Figure 3. Comparison of mentored group and control group for perception of classmate acceptance at post 3.

Negative school behavior. The students' reported school behavior problems from the survey were analyzed and compared using the t-test. When the mentored group ($M = 1.34$, $SD = .26$) and the control group ($M = 1.79$, $SD = .51$) were compared, the analysis yielded a statistically significant difference, $t(12.21) = 2.53$, $p = .03$. (See Figure 4).

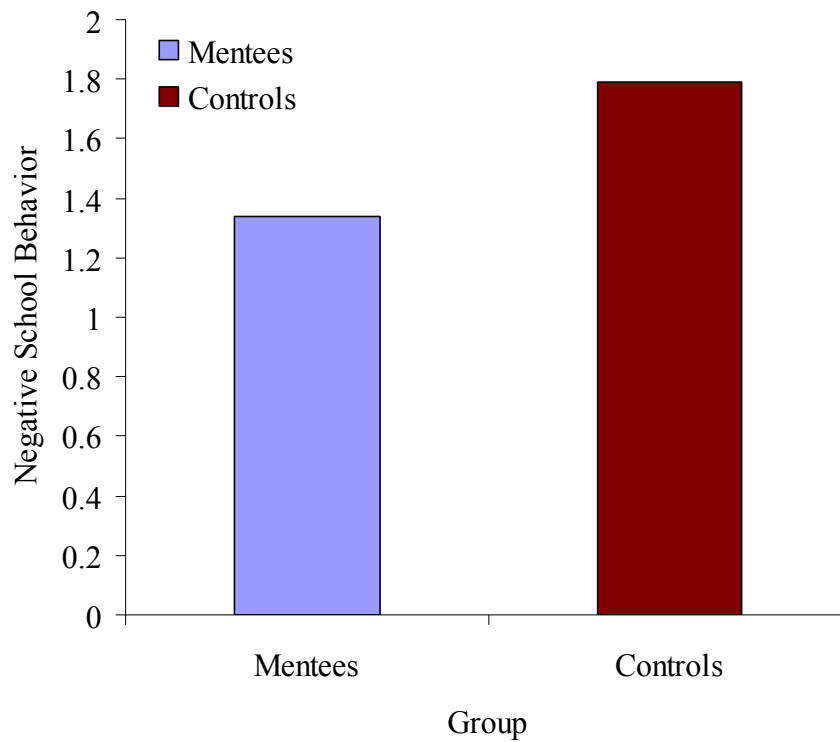


Figure 4. Comparison of mentored group and control group for negative school behavior at post 3.

Disciplinary referrals. When the disciplinary referrals of the mentored students (3 referrals) were compared to those of the control students (15 referrals) using the Mann-Whitney U test, a significant difference was found between the groups, $Z = -2.35$, $p = .02$. (See Figure 5).

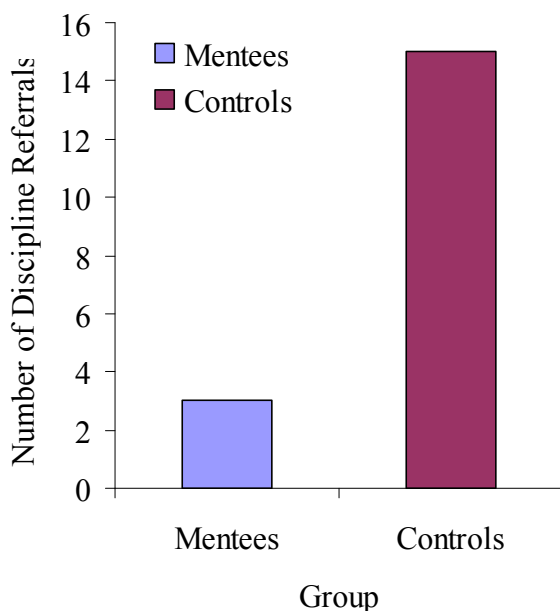


Figure 5. Comparison of mentored group and control group for recorded disciplinary referrals at post 3.

Group Comparisons for Academic Performance

Mathematics grades. A repeated measures mixed ANOVA, with Huynh-Feldt correction, was conducted to assess the interaction of mentor group versus control group assignment and time for the students' grades in mathematics. The results indicated that the mentored group's mathematics grades were statistically significantly different when compared to the control group's mathematics grades. A statistical significant interaction was found for Group (mentored/control) x Time (pretest, post 1, post 2, post 3), $F(2.3, 54.51) = 3.46, p = .03, \eta^2 = .35$. An eta of .35 is considered to be a large effect (Leech, Barrett, & Morgan, 2005). (See Figure 6) (See Table 6). The mentored-group students

primarily maintained their grades, with a slight increase while the control-group students' grades fluctuated, then sharply declined.

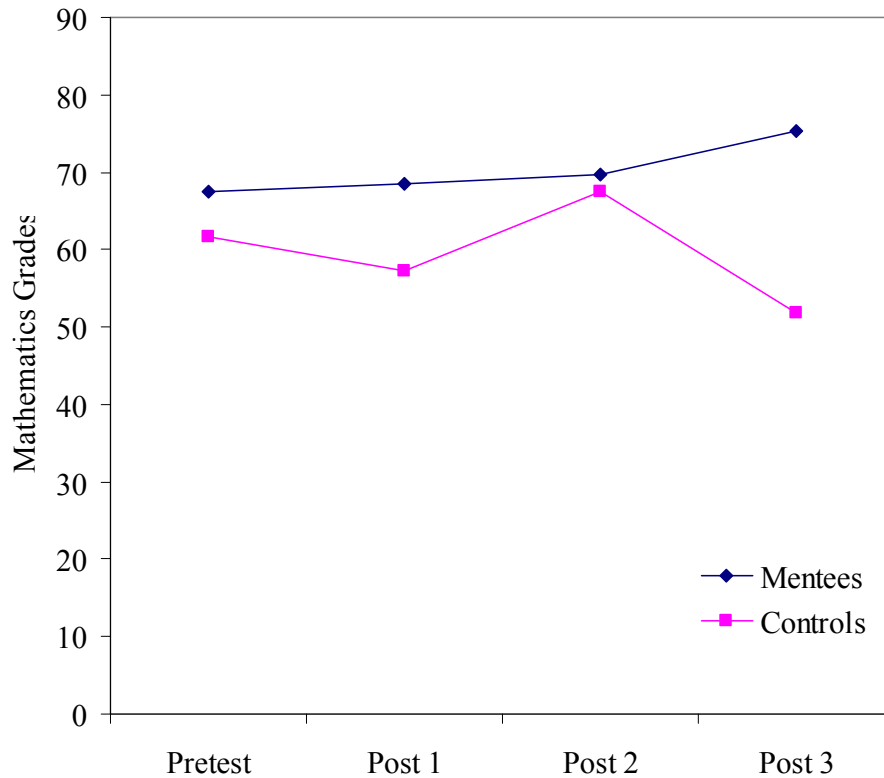


Figure 6. Effects of mentoring on participants' mathematics grades.

Language arts grades. A repeated measures ANOVA, with Huynh-Feldt correction, was conducted to assess if mentoring had an effect over time. The Language arts grades of the mentor group and control group were analyzed and the results indicated that Group (mentored, control) x Time (pretest, post 1, post 2, post 3) had a significant interaction effect on Language Arts grades, $F(2.5, 60.8) = 3.13$, $p = .04$, $\eta^2 = .34$. This η^2 is considered to be a large effect (Leech, Barrett, & Morgan, 2005) (See Figure 7) (See Table 6). The mentored group's grades gradually increased over time, while the control group's grades declined sharply, and then returned to near baseline.

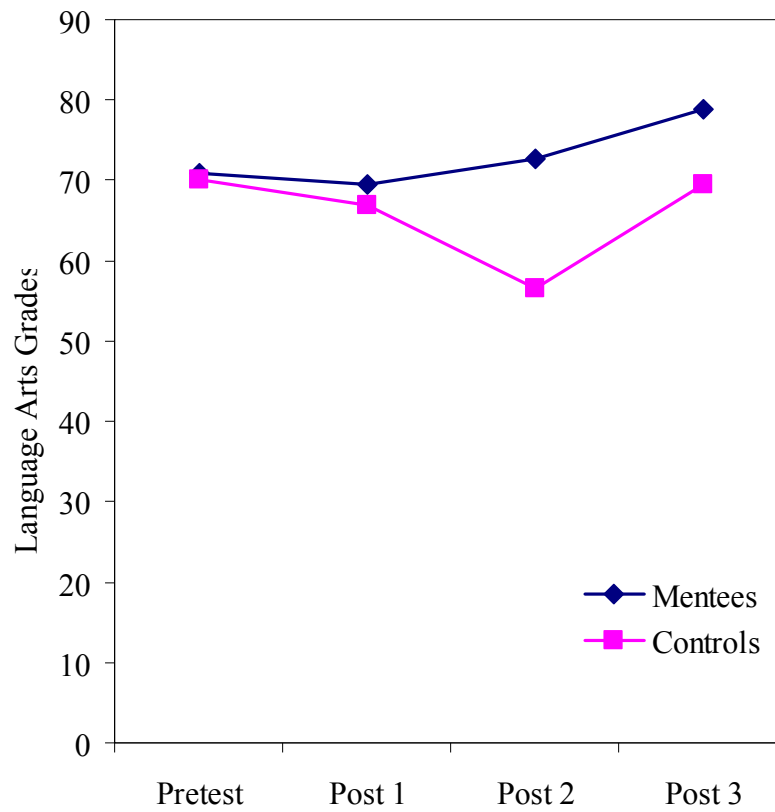


Figure 7. Effects of mentoring on participants' language arts grades.

Social Studies or Science grades. A repeated measures mixed ANOVA was conducted to assess Group (mentored/control) x Time (pretest/post 1/post 2/post 3) differences for the social science grades. The social science grades for the mentored students were not statistically different from the control group's grades, $F(1,24) = .04$, $p = .85$, $\eta^2 = .04$ (See Table 6).

Table 6

Means, Standard deviations, F Values, and Between Groups Effect Sizes for Academic Variables (n=26)

	Pretest		Posttest 1		Posttest 2		Posttest 3		F-Value	Effect Size ^c
	Ment ^a (n=15)	Cont ^b (n=11)	Ment ^a (n=15)	Cont ^b (n=11)	Ment ^a (n=15)	Cont ^b (n=11)	Ment ^a (n=15)	Cont ^b (n=11)		
Variables	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)		
Mathematics	67.4 (13.06)	61.64 (15.93)	68.6 (21.26)	57.18 (19.06)	69.8 (17.42)	67.5 (9.48)	75.3 (17.39)	51.86 (21.28)	3.46 [*]	.35
Language Arts	70.87 (10.41)	70.14 (9.29)	69.4 (13.42)	66.95 (7.20)	72.63 (14.79)	56.5 (16.43)	78.87 (11.18)	69.41 (13.53)	3.13 [*]	.34
Social Science	68.97 (15.45)	67.82 (23.61)	67.87 (22.13)	56.18 (17.64)	68.67 (15.49)	73.77 (13.73)	72.63 (16.55)	64.09 (13.64)	0.04	.04

Note. ^a Ment is used to identify the treatment group (mentees). ^b Cont is used to identify the control group (controls). ^c The magnitude of the effect size is measured using eta (η). A small eta = .10, medium eta = .24, large eta = .37, and very large eta $\geq$.45.

CHAPTER IV

DISCUSSION

This study accomplished what it set out to do in that it replicated and extended Holt et al. (2008). This study replicated Holt et al.'s finding for two important variables that are suspected to impact the academic outcomes of at-risk youth. Achievement Mentored students reported significantly greater perception of teacher support and significantly less negative school behavior than did the control group. The study extended Holt et al.'s findings with evidence that Achievement Mentoring significantly affected grades in a positive direction by the end of the fourth semester. Also, mentoring positively affected the perception of peer acceptance by the end of the second school year.

Regarding the mentored students' perceived teacher support, Hawkins, Catalano, and Miller (1992) suggested that a positive relationship with a trustworthy adult can result in youths trusting other authority figures and feeling a sense of belonging in conventional institutions. Thus, having a greater perception of teacher support is an aspect of students' increased sense of school belonging (Goodenow, 1993). According to Goodenow (1993), theoretically, students with higher senses of school belonging are likely more motivated, which ultimately influences their school achievement. Specifically, the author stated that it seems "psychological sense of membership may affect school behavior and academic achievement indirectly through its influence on motivation" (pg. 87). Thus, the perception of teacher support finding suggests that

mentored students will potentially demonstrate favorable differences in their school behavior and academic achievements when compared to the control group, and indeed they did.

The other major replicated finding is the reduction of negative school behavior by the mentored students. The mentored students' reported decrease in self-reported negative school behavior was supported by the objective recorded discipline referrals. Negative school behavior has been associated with increased school dropout rate in a number of studies (Finn & Rock, 1997; Rumberger & Lim, 2008). Also, negative school behavior such as cutting class, poor attendance, and in- and out- of- school suspension is associated with students' school engagement (Finn & Rock, 1997). Hawkins, Catalano, and Miller (1992) suggested that a close adult-student relationship, which is typical of mentoring, causes youth to resist peer pressure to engage in negative behavior. Grossman and Rhodes (2002) and Keating et al. (2002) also found that mentoring reduced students' delinquent behavior. According to Grossman and Rhodes (2002), students who were mentored for at least 12 months decreased their negative behaviors such as, truancy and substance use. Keating et al. (2002) also found that mentored students had fewer delinquent behaviors. Thus, the implications of the current study's finding are that mentored students' decreased negative school behaviors could be associated with greater school engagement, which in turn influences academic achievement and decreases the likelihood of school dropout.

The current study also extends Holt et al.'s (2008) findings. By continuing the current study for an extra semester, additional variables were investigated and significant effects of mentoring were found on self-reported peer acceptance, discipline referrals,

and students' grades. Extending the study was important because it provided the evidence that changes can occur in the official school records of mentored at-risk youth, but these changes might take awhile to be realized (Bry & George, 1980; Grossman & Rhodes, 2002; Herrera et al., 2007). Bry and George (1980) suggested that students must be in a school-based program for at least two school years before reliable results can occur in grades. These findings also support the findings of Herrera et al. (2007) and Grossman and Rhodes (2002) who found that significant differences were most evident for students who were mentored for 12 or more months.

One possible explanation why mentored students demonstrated greater improvement when mentored for more than 12 months might be that, as time goes on, the mentees begin to believe that the adults are invested in them, which in turn makes them more motivated to change their behavior. Perhaps 1 ½ - 2 years are needed in order for high school students to trust mentors to not give up on them but to continue being engaged and supportive. These students might have been disappointed in the past when they believed that non-parent adults were committed to them and these adults were unable to remain with the students as expected. These findings suggest that non-parent adults who can commit to students for at least two years can effect positive changes.

By the end of the second school year, significant effects were found on perception of peer acceptance and on grades in two major academic courses, mathematics and language arts. The idea that mentoring could increase at-risk youth's reported perceived peer acceptance was suggested by Hughes, Cavell, Meehan, Zhang, and Collie (2005). The researchers wondered if positive perception of peer acceptance would be upheld if mentoring were compared with a no treatment control group. The current study answered

this question. Indeed, this study found that, at the end of the second school year of the mentoring program, mentored students reported greater perceived classmate acceptance than did the control group. Of course there are a variety of factors that might contribute to mentored students increasing their acceptance among their peers. As Hughes et al. (2005) suggested, perhaps having a mentor increased the students' status among other students; or it is possible that the new skills that the mentor taught the student assisted the student in behaving in socially acceptable ways, making it easier to interact and form relationships with other youth.

The mentored students also earned higher grades in mathematics and language arts than the control group. Herrera et al. (2007) also found that mentored students improved their academic performance, though those findings were only based on the students' teachers' reports. The current study supported Herrera et al.'s (2007) finding by utilizing an objective measure, the students' report cards, to assess the mentees' outcomes. Helping students to improve or maintain grades is significant because a major reason why students drop out of school is an inability to maintain adequate grades (Rumberger & Lim, 2008). Furthermore, Hawkins, Catalano, and Miller (1992) theorized that bonding with teachers leads to achieving in school. Thus, the mentees' improved grades and their reported increased perception of teacher support supports Hawkins et al.'s theory.

Increasing at-risk students' perception of teacher support, academic performance, peer acceptance, and reducing their negative behavior has long term effects as suggested by Bachman, O'Malley, Schulenberg, Johnston, Freedman-Doan, and Messersmith (2008). According to these researchers, students who are successful in school, as indicated by

their sense of school connectedness and academic achievement, are more likely to have positive adulthood outcomes (Bachman et al., 2008).

This study did not replicate Holt et al. (2008)'s finding that mentoring at-risk youth increased their self-reported decision-making self-efficacy, although the groups' mean differences were in similar directions as Holt et al.'s finding. Also, no evidence was found that mentoring affected goal-setting self-efficacy. Although statistical significance was not found for these two variables, there are a number of possible reasons for this outcome. It may be that low power, as a result of the small sample size, affected the outcome of these variables. Another possible reason for the lack of significant findings for these two variables is the participants' involvement in the PGC program. Since PGC is a peer leadership program, the control group members' involvement in this program could have enhanced their ability to make decisions and set goals. Another question is whether an objective measure of decision-making and goal-setting might have provided evidence that mentoring made a difference. The reliance on only self-reported data might have limited group differences.

Finally, the mentors' level of adherence to critical items of the manualized program may have affected the outcome of decision-making self-efficacy and goal-setting self-efficacy. For example, for items such as "asked about mentee's circumstances or perceptions around problem/goal" and "made plans with mentee to implement a solution," the mentors only attained a 45% and 57% adherence level, respectively. These particular items may have had a relationship with the mentees' goal-setting and decision-making abilities. In the future, it might be helpful if the mentors received additional training to better implement these specific items. It would be

worthwhile for these variables to be reexamined in a future mentoring study with a larger sample size and more power.

Limitations and Future Research

Although this study improved on previous mentoring studies by randomizing the participants and using both objective and subjective outcome measures, there are a few limitations which might have prevented there being more significant findings. Foremost, the small sample size impacted the study because of the large attrition that occurred. The primary cause of the attrition was the targeted population. This study focused on students who were predicted to dropout of high school. It is therefore not surprising that some of these students did stop attending high school and were lost to contact. Some of the students who were lost to contact pursued other types of educational and training programs such as, alternative high school and Job Corp. By the end of the study, approximately 26% of the treatment group and 42% of the control group were no longer participating. Though the difference between the number of mentored students who attritted and the number of no-mentoring students who attritted seems large, the difference was not statistically significant. If this study had had a larger sample size, group differences in dropout might have been detected. Additionally, if this study had lasted longer, mentoring might have shown a significant effect on dropout.

Another limitation is the reliance on some self-report data rather than more objective measures for the outcome assessment. Although strong, objective outcome measures such as report cards and school recorded discipline referrals were used to determine the impact of mentoring, all other variables (e.g., decision-making, goal-setting, perception of teacher support, etc.) were only based on the students' reporting,

which could introduce some bias. It might have been prudent to collect multiple measures of these variables such as teachers' or parents' reporting of the students' behavior.

The mentors' percentage of adherence to the program procedures also created additional limitations to this study. Although in this study the mentors' percentage of adherence to the program as outlined was 72%, which is similar to Holt et al.'s (2008), as previously noted, the mentors' level of adherence might have affected the number of variables that mentoring affected. A number of efforts were made to increase the mentors' adherence, including having ongoing group consultations with the program developer during the second school year (booster year). If even greater compliance could be generated (i.e., at least 85%), it is possible that there could be even greater outcomes for these youth.

The demographics of the participants also present a limitation for this study. The majority of the participants were African American youth from an urban high school. Although some of the significant results represented replication of results found in other populations, the unique current results should be generalized only with caution. Nevertheless, given all these limitations, it is particularly notable that Holt et al. (2008) was basically replicated and extended with a number of important findings.

Given the various limitations to this study, there are a number of implications for future research. This study should be replicated with a larger sample and with a more diverse population. A larger, more diverse sample will allow the results to be more generalizable and provide the opportunity for exploration of possible differences between the various ethnic/racial groups. A future study should also include a control group that

receives no other programming and a mentoring group that receives no other programming. As previously noted, all the participants of the current study were also receiving PGC. The participants' involvement in the PGC program might have impacted the study outcome, particularly for those variables that showed no group difference.

Additionally, future research should consider the use of multiple measures to assess all variable outcomes. For example, collection of both students' and teachers/parents' data on the same variable will provide information that can be examined for consistency. Finally, the research design should include strategic ways of engaging mentors and ongoing analysis of the adherence data to achieve even greater fidelity. One consideration is to analyze the adherence data throughout the study, perhaps at 3-month intervals, and provide the program developer with on-going feedback during the year. This modification to the current study would allow the program developer/trainer to alter the training methods to improve adherence rather than learning about the level of adherence after the study is concluded.

Conclusions

A number of important results were found in this small study. This research identified specific areas of improvement made by at-risk mentored students over an extended period of time, and the substantial impact Achievement Mentoring can have on factors that are deemed important for the prevention of high school dropout. Though all hypotheses were not supported, a number of significant findings were observed that replicated those of previous mentoring studies. This study's results supported previous findings on mentees' increased perception of teacher support (Holt et al., 2008), increased perception of peer acceptance (Grossman & Rhodes, 2002; Hughes et al.,

2005), decreased negative behavior (Grossman & Rhodes, 2002; Holt et al., 2008; Jackson, 2002; Keating et al., 2002), and improved academic performance (Herrera et al., 2007). Furthermore, this study supported the findings of Bry and George (1980), Grossman and Rhodes (2002), and Herrera et al. (2007) that mentoring that exceeds one year shows more promise for the mentees than mentoring that lasts less than 12 months.

The results of this study suggest that at-risk youth who are mentored for more than 12 months are likely to view their teachers as more supportive, to view their classmates as more accepting, to reduce their negative behaviors, and to improve academically, when compared to non-mentored at-risk youth. The presence of mentors in the lives of these youth effected change in areas that can decrease the probability of negative trajectories such as school dropout. Accordingly, these “caring non-parent adults” (Werner, 2003; Werner & Johnson, 2004) can potentially help adolescents fare better than they would have if they had not had a mentor in their lives.

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APPENDIX A

Perception of Teacher Support

<i>Please circle one answer indicating how much each statement is true for you.</i>	Really False	Somewhat False	Somewhat True	Really True
1. Most teachers at school are interested in me.	1	2	3	4
2. The teachers here respect me.	1	2	3	4
3. There's at least one teacher or other adult in this school I can talk to if I have a problem.	1	2	3	4
4. Teachers here are not interested in people like me.	1	2	3	4

Decision-making Self-efficacy

<i>How often would you say that you...</i>	Never	Rarely	Some-times	Often	Always
1. Stop to think about your choices before you make a decision?	1	2	3	4	5
2. Stop to think about how your decisions may affect others' feelings?	1	2	3	4	5
3. Make good decisions?	1	2	3	4	5

Goal-Setting Self-efficacy

<i>How often would you say that you...</i>	Never	Rarely	Some-times	Often	Always
1. Work on goals that you have set for yourself?	1	2	3	4	5
2. Think about what you would like to be when you become an adult?	1	2	3	4	5
3. Set goals to achieve?	1	2	3	4	5
4. Give up on a goal?	1	2	3	4	5
5. Give something your best?	1	2	3	4	5

Perception of Peer Acceptance

<i>First, some questions about students in your classes...</i>	Disagree	Slightly Disagree	Slightly Agree	Agree
1. Students in my classes are willing to listen to me.	1	2	3	4
2. I think students in my classes value my efforts.	1	2	3	4
3. My classmates want me to do well.	1	2	3	4
4. I think that my classmates are on my side.	1	2	3	4
5. My classmates get me to think about my feelings.	1	2	3	4
6. I can ask my classmates for help with my homework.	1	2	3	4

Negative School Behavior

<i>During the past school year, how often did any of the following happen to you?</i>	Never	Once or Twice	More than Twice
1. I cut at least one class	1	2	3
2. I cut the entire school day	1	2	3
3. I showed up for school late (unexcused)	1	2	3
4. I was sent out of class because I misbehaved	1	2	3
5. My parent(s)/guardian(s) received a warning about my attendance, grades, or behavior	1	2	3
6. I got in a physical fight with another student	1	2	3
7. I was put on in-school suspension	1	2	3
8. I was given an out-of-school suspension	1	2	3

APPENDIX B

Mentor Adherence
Achievement Mentoring Program

1	Met with consultant	
2	Had mentee's records	
3	Talked to a teacher or administrator regarding mentee	
4	Talked to, or left message for mentee	
5	Identified something praiseworthy	
6	Identified a problem or goal	
7	Asked about mentee's circumstances or perceptions around problem/goal	
8	Made plans w/mentee to implement a solution	
9	Checked how previous plans worked	
10	Mentor verbalized next step(s)	